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Title: Evaluation of urinary fluoride excretion following NaF mouth rinse prescription in 6-12 yeas old children

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Introduction:

Sodium fluoride mouthrinses have been effective in preventing caries in numerous clinical trials during the past 50 years. The purpose of this study was to asses the oral retention, or ingested and urinary excretion of fluoride with the use of Naf mouthrinse.

Materials & Methods:

45 school children at the ages of 6 to 12 years at a day & night (residential) nursery were selected. The amount of fluoride in their drinking water was about 0.2ppm. At the first part of study, before using mouthrinse children were instructed to brush their teeth at bedtime with non fluoride dentifrice. The salivary specimens were gathered the same night after brushing, but specimens from the urine were gathered the next morning. In the second part, the same specimens were taken after using the 0.2% Naf mouthrinse (1 minute with 5ml). The difference between amount taken orally and the one not recovered in the expectoration is amount of fluoride retained orally and potentially ingested. Fluoride concentration in the urine and saliva was measured by means of potentiometer device. The data were analysed by the statistical package of Graphpad instat and using paired sample t.test, and analysis of variance. The numerical values are shown as mean ±sd.

Results:

The fluoride retained during mouthrinsing ranged from 1.07 to 2.42mg F, with the average of 1.7±0.32mg F. The amount of F excreted before and after mouthrinsing was 110.56±40.46 μg and 201.27±70.45 μg respectively. The urinary fluoride excretion rate before and after mouthrinsing was 13.87±5.05 and 24.68±9.35 respectively. These results indicated that more than 1/3 of the applicated solution is orally retained or potentially ingested. There was significant difference between the amount of urinary fluoride excretion rate before and after mouthrinse application ($P<0.0001$).

Conclusion:

Amount of fluoride existing in fluoride mouthrinse might be swallod and ingested, therefore necessary caution should be consider inorder to recommend this fluoride regimen in school children. The potential ingestion may be considered unimportant, but since there are many other sources of fluoride such as dentifrices, fluoride accumulation may be a cause of increasing the fluorosis risk. So, training and teaching school personel about proper use of mouthrinse is of great priority.

Key word:

Naf mouthrinse, oral retention, urinary excretion of fluoride, fluorosis.

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